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THE PLANETARY NEBULA SD. — 12°, 1172.

By W. W. Campbell.

This nebula was discovered by Mrs. Fleming on the Harvard College Observatory plates by means of its spectrum of bright lines, and attention was called to the fact that its $H\beta$ hydrogen line is unusually bright.

It is a beautiful object as seen in the 36-inch telescope, consisting of a 9th magnitude star surrounded by a circular disc of blue light nearly 15″ in diameter. In the spectroscope, with open slit, the well-known nebular lines at wave-lengths 5007, 4959 and 4862 are seen as circular discs, of which the last is considerably the largest in diameter. The diameters of the three discs were measured with the micrometer, and found to be about 11″, 9″ and 14″ respectively. The relative intensities of the light in the three discs were estimated at 10:3:7. A wedge photometer of increasing darkness was moved over the eye-piece at right angles to the line joining the three discs; and the fact that the disc at 4862 disappeared before the disc at 5007 did, proves that the latter is the brighter. All of the discs are brightest at the centers and fade away gradually as the edges are approached, as would be expected; but the hydrogen disc 4862 is of much more uniform brightness throughout than the other two.

The relative diameters and intensities of these discs are very important, in that they make it almost absolutely certain that the incandescent hydrogen which furnishes the disc 4862 forms the outer shell or layer of this nebula, and that the unknown gases which furnish the discs 5007 and 4959 must for the most part lie within the hydrogen exterior.

It should be pointed out that this nebula is very near the nebulous regions of *Orion*. The hydrogen lines are relatively very strong in the *Orion* nebula spectrum, also, and a possible common origin of the two objects is suggested.

The other hydrogen lines $H\gamma$, $H\delta$ and $H\alpha$ are visible in this spectrum, but the last two are very difficult. No other lines were seen with certainty.

November 3, 1893.